

PRACTICE OBSERVED

Practice Research

Feasibility of contact surveys in general practice

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Abstract

Surveys to evaluate risk factors for disease in the general population are popular with health authorities for assessing the effectiveness of their preventive measures. A contact survey of the lifestyles of 2000 randomly selected patients aged 25-64 was conducted in five general practices over 18 months; the medical records of the patients selected were tagged, and when the patients first visited the surgery they were given a questionnaire by the receptionists, which they completed in the waiting room. Over the 18 months at least 1400 of these patients visited the practices, of whom 1106 (55%) completed a questionnaire and 20 refused to do so; 896 (81%) completed it within one year. Information on the patients who were not surveyed was obtained by sending the questionnaire by post and by audit of medical records. The population surveyed on contact with the surgeries contained a higher proportion of young women, and possibly a higher proportion of patients from social classes III-M-V, than the other patients. No important or consistent bias towards unhealthy patients at high risk was identified in the contact survey.

A one year contact survey of a random, tagged sample is feasible in estimating the risk factors in a population and may be the method of choice in general practice because of its low cost and adaptability.

Introduction

The current enthusiasm for surveys of lifestyle stems primarily from the urgent need to arrest the epidemic of heart disease in the United Kingdom and, hence, to assess the effectiveness of measures taken to prevent the general public living unhealthy lives. Many health authorities spend large sums of money on postal surveys to assess risk factors for disease, and the possibility of telephone surveys and surveys in the style of market research has also been discussed. Continuous surveillance of risk factors for disease through general practice is therefore an attractive option for health authorities and general practitioners. Doubts have been expressed, however, about the feasibility of, and the possible overrepresentation of unhealthy people in, any survey conducted in general practice surgeries.

The Information on Prevention project was started in Aylesbury in 1984 to assess the feasibility of exchanging information between general practices and a district health authority. One of the main interests of the health authority was the possibility of obtaining accurate information on the prevalence of risk factors for disease in the local population without resorting to expensive, and sometimes unreliable, community surveys. We previously reported the results of an audit undertaken to assess the reliability and completeness of general practice records as a source of information on risk factors.¹ We present here the results of the second phase of the project in Aylesbury: the evaluation of a system of surveillance of risk factors based on patients who were identified by random selection from each practice's list and surveyed with a self administered questionnaire when they attended the surgery (contact survey).

Patients and methods

The study was set up with the cooperation of five general practices with an aggregate list of 44 000 patients, representing about one third of the total population of the district. The criteria for selection of practices were predominantly geographical: one practice was recruited from each of the main centres of population in the south of the district. Nevertheless, the

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practices were not representative: they were all group practices based in health centres, and three of the five undertook vocational training for general practitioners.

The study sample, which was identical with that in the previous study,¹ consisted of 2000 patients aged 25-64: 400 patients from each of the five practices. Each patient was randomly selected by counting the cards in the practices' age-sex registers, calculating an appropriate sampling interval (range 1 in 10 to 1 in 14), and selecting patients from the register at this interval. If the medical records of patients identified from the card index could not be found the next index card was selected.

For the patients selected a tag like a bookmark was inserted into (or

Results

Figure 1 shows details of the response to the survey. Of the initial sample of 2000 patients, at least 1400 visited the surgery during the 18 months of the survey. The questionnaire was completed at the surgery by 1106 patients (79%) and 20 patients refused. The reception staff failed to give the questionnaire to 274 patients and to complete the visit record card for at least 143 patients. Of the 700 questionnaires posted, 334 (48%) were returned completed after two mailings. The rate of completion of questionnaires for the contact survey was therefore 55% (1106 out of 2000), with a possible maximum of 70% (1400 out of 2000) if all patients known to have visited the

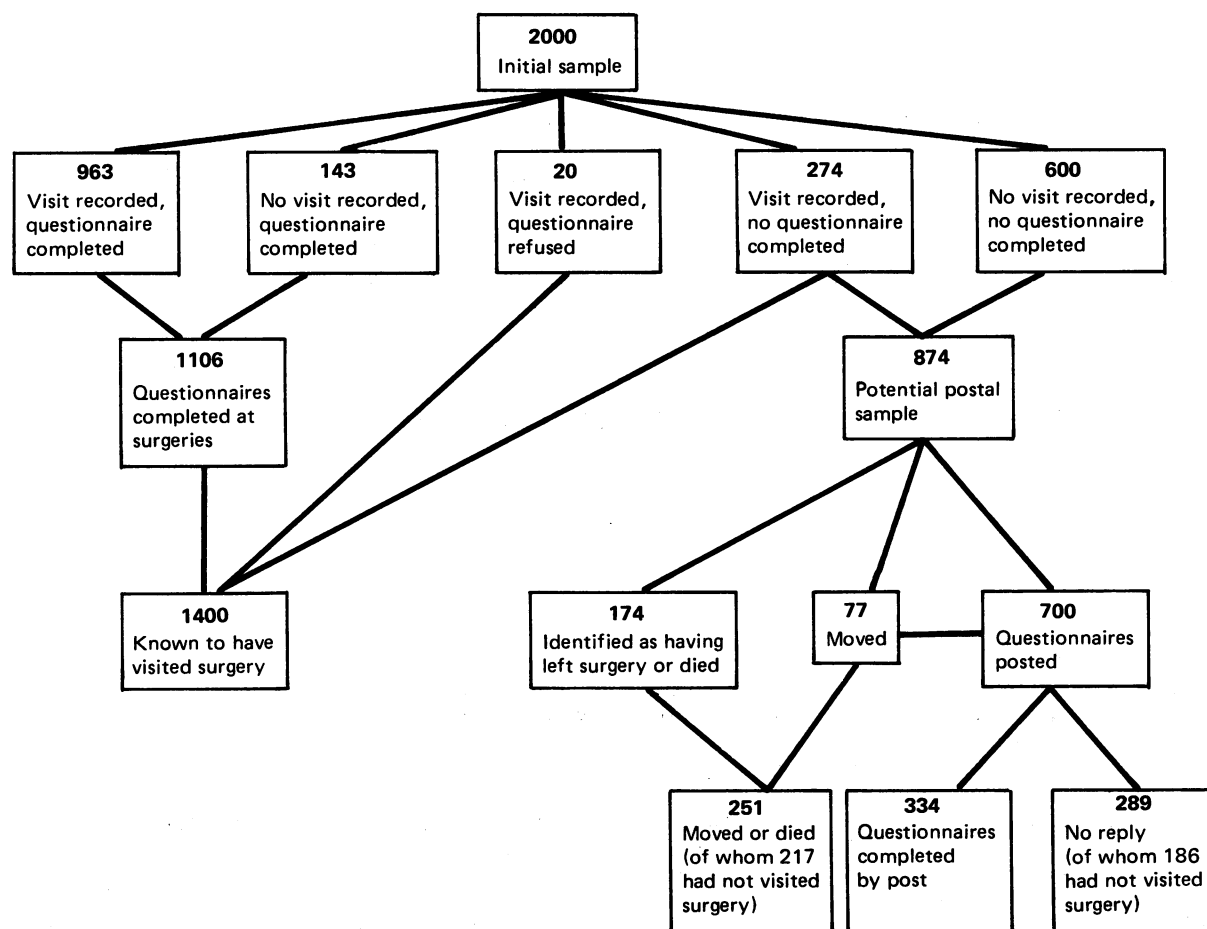


FIG 1—Details of response to contact and postal surveys.

clipped on to in the case of records of A4 size) their medical records, and a box of questionnaires was left with the reception staff. Receptionists were asked to record each visit to the surgery (to consult a doctor or a nurse) by patients with a tagged record, by stamping or writing the date on the tag. In addition, at the first visit they were asked to give a questionnaire to the patients for completion in the waiting room. The patients were asked to hand the completed questionnaire to the doctor or nurse whom they were consulting. If the patients refused to comply this was marked on the tag and they were not approached again.

The questionnaire was designed to take less than 10 minutes to complete and consisted mainly of simple questions on smoking, diet, lifestyle, and social state. In addition, the patients were asked to record height and weight, while the doctor or nurse was asked to record on the questionnaire the blood pressure during the subsequent consultation.

If patients had died or left the practice before contact was made no replacements were selected. The tags were left in the medical records for 18 months, after which the questionnaire was sent by post to those patients who had not completed one at the surgery (and were not known to have died or moved) (postal survey). Two mailings were made. Finally, information on occupation was abstracted from the medical records of patients who did not reply to the second mailing.

Data were analysed on an IBM compatible microcomputer with the statistical package for the social sciences.

surgery had completed a questionnaire. At least 251 patients, and possibly more, had died or were not living at the address known to the practice by the end of the contact survey. When these patients were excluded the overall response rate for the combined postal and contact survey was 82% (1440 out of 1749).

Figure 2 shows the cumulative return of completed questionnaires during the contact survey. Altogether 81% of the completed questionnaires were returned within the year, and a further 4% were discovered—for example, still attached to the medical record—during the tidying up phase at the end of the project. The marginal benefit of continuing the survey beyond one year was therefore small. If all patients contacting the surgery had been given the questionnaire and the rate of refusal had remained constant a completion rate of 56% would have been achieved in 12 months.

Table 1 relates the likelihood of each patient receiving a questionnaire in relation to the number of visits made to the surgery during the 18 months of the contact survey as recorded on the tag attached to the medical record. Frequency of attendance clearly had a strong impact on the likelihood of completing a questionnaire: nine out of 10 patients attending five or more times responded compared with six out of 10 patients attending only once. Obviously this increased the chance of unhealthy patients being sampled preferentially. The number of visits recorded, however, was not formally validated against the medical records, and considerable underreporting was noted: for 143 patients who completed the questionnaire at the surgery

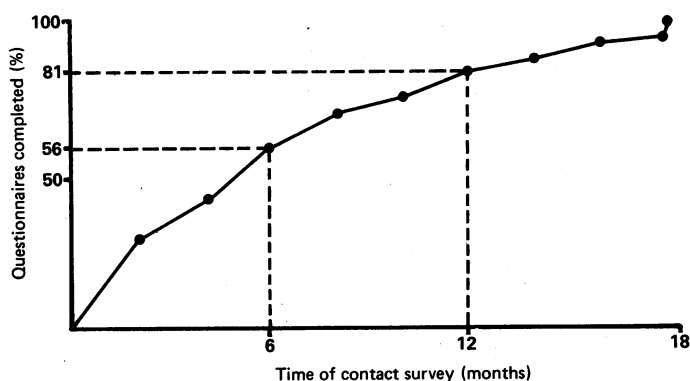


FIG 2—Cumulative percentage of questionnaires completed at surgery attendance during 18 months of survey.

TABLE I—Numbers (percentages) of patients not completing questionnaire in relation to total number of visits to surgery during 18 months of survey

No of visits recorded	All patients	Patients not completing questionnaire
1	295	122 (41)
2	236	74 (31)
3	180	35 (19)
4	130	20 (15)
≥5	416	43 (10)
Total	1257	294 (23)

either the tag had been lost or no visits had been recorded on the tag. This may have exaggerated the positive relation between frequency of attendance and completion of the questionnaire.

Tables II and III compare the characteristics of patients who completed the questionnaire on contact with the surgery with those of patients who did

TABLE II—Demographic characteristics of patients who were surveyed on contact with surgery and those who were not. Figures are numbers (percentages) of patients

	Patients surveyed on contact with surgery (n=1106)	Patients not surveyed on contact			
		Total (n=894)	Postal survey (n=334)	Moved, died, or refused (n=271)	Not known (n=289)
Men	469 (42)	524 (59)	191 (57)	149 (55)	184 (64)
Age (years):					
25-34	327 (30)	231 (26)	67 (20)	99 (37)	65 (23)
35-44	361 (33)	286 (32)	109 (33)	80 (30)	97 (34)
45-54	219 (20)	224 (25)	94 (28)	52 (19)	78 (27)
55-64	199 (18)	153 (17)	64 (19)	40 (15)	49 (17)
Social class*:					
I-II	327 (31)	181 (37)	110 (35)	35 (43)	36 (39)
III	312 (29)	127 (26)	90 (29)	16 (20)	21 (23)
IIIM	266 (25)	137 (28)	91 (29)	20 (24)	26 (28)
IV-V	163 (15)	44 (9)	23 (7)	11 (13)	10 (11)

*Classification of the Office of Population Censuses and Surveys. Percentages based only on classifiable patients: 1068 in the contact survey and 489 not surveyed on contact, of whom 314 were in the postal survey, 82 had moved, died, or refused, and 93 were not known.

not. Table II shows the expected bias towards women in the contact survey, and an excess of young women accounted almost entirely for the difference in age structure between the two groups. The respondents in the contact survey also included more patients from social classes IIIM, IV, and V (40%), although as information on the social class structure of the group that was not surveyed on contact with the surgery was incomplete this conclusion must be treated with caution. Table III presents a comparison of risk factors for disease reported by respondents to the contact and postal surveys. We found no evidence of an important or consistent bias towards unhealthy or high risk patients in terms of diet or exercise in the contact survey, although there were more smokers in the contact survey group.

TABLE III—Comparison of risk factors reported by patients completing questionnaire on contact with surgery and by post

Risk factor	Contact survey		Postal survey	
	No of patients responding to question	No (%) with risk factor	No of patients responding to question	No (%) with risk factor
Eating mainly white bread	1064	405 (38)	328	129 (39)
Taking inadequate exercise*	1064	620 (58)	324	187 (58)
Obesity (Quetelet index ≥30)	1081	92 (9)	328	23 (7)
Eating low fibre breakfast cereal	1054	191 (18)	319	71 (22)
Smoking	1066	362 (34)	329	97 (29)

*Primarily sedentary occupation and no vigorous leisure activity.

Finally, one clear success of the study was the cooperation of the general practitioners, who were mainly responsible for measuring blood pressure: 91% of completed questionnaires contained a record of blood pressure.

Discussion

The age-sex register in general practice is not a perfect sampling frame because of the problems of mobility, wrong addresses, and people not registering with a doctor. Fraser and Clayton estimated that 92% of patients entered in age-sex registers in general practice and with medical records were bona fide patients and that the problem of wrong addresses in records was small.² Their survey was undertaken in five practices in Leicestershire, which may have been similar to our practices in Buckinghamshire. Studies done in inner cities have, however, indicated a less satisfactory picture, particularly as regards address—for example, Silman reported that 26% of addresses in an age-sex register in a practice in London were wrong.³ Nevertheless, most surveys of lifestyle use general practice lists as sampling frames, and so comparing the relative benefits of the contact and postal approaches is of interest.

Contact surveys minimise the problem of addresses being inaccurately recorded but maximise the problem of mobility. We predicted the degree of patient mobility to be 5-10% a year, but we decided not to replace patients who had moved or died because of the difficulty of adopting a scientifically adequate criterion for their replacement that was administratively feasible in general practice. Thus if a contact survey is to be used for continuous surveillance a choice must be made between maintaining a constant sample with replacement and taking a fresh sample every few years. Our results suggest that taking a fresh sample, perhaps every five years, is preferable administratively despite the decreased likelihood of detecting small changes with statistical certainty.

Most patients were able and willing to complete the questionnaire in the waiting room. Most of the questionnaires returned were completed fully, which might be because they were fairly short. This means, however, that the amount of information obtained was considerably less than could have been elicited in a postal survey, although it might be argued that waiting times in most surgeries are sufficiently long to allow completion of very long questionnaires. Our discussions with the reception staff suggested that the fairly high rate of failure to hand out the questionnaires when appropriate reflected neither pressure of time nor covert refusal but rather the fact that the questionnaires were left in a box and not attached to the notes. If this difficulty was overcome it would be reasonable to expect a 50-60% response rate within a year rather than 18 months. The second national morbidity survey documented a consultation rate in general practice of about 60% for men and nearly 70% for women aged 25-64 during a study period of one year.⁴

Interestingly, the Medical Research Council's framework study on lifestyle and health found no systematic differences in risk factors between patients surveyed in the surgery and those who responded by post.⁵ Is it therefore necessary to identify a random sample rather than, say, give out a questionnaire to everyone visiting a surgery

during one week? The main empirical argument against giving out a questionnaire to everyone over a short period is the large difference in individual consultation rates observed in this and other studies: without an initial random sample the bias towards unhealthy patients would undoubtedly be increased.

We conclude that a one year contact survey can be done in general practice without costing a lot or disturbing the routine of the practice. It takes about six hours for someone to tag 400 records, which compares favourably with the costs of a postal survey. With reasonable cooperation and fairly accurate age-sex registers at least half of the sample selected will be surveyed in one year. This is appreciably less than the response achieved after the third mailing of an equivalent postal survey and the bias towards young women will be greater; on the basis of the limited risk factors measured, however, a contact survey may still produce an acceptable estimate of the risk factors in a population.

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MATERIA NON MEDICA

How many were the few?

The Battle of Britain ended 47 years ago today. This 16 week conflict was the first decisive air battle in history, and the clear defeat of the Luftwaffe was Germany's first setback in a war it eventually lost.

A detailed account of the battle was published in 1980 and I have used the information it gives to re-examine the casualty figures. I was impressed by two aspects of Royal Air Force organisation which are relevant to the running of a health service—namely, good intelligence sources and good general management with a clear chain of command.

In wartime precise figures of casualties are difficult to give. The 1941 Air Ministry account of the battle reported that 375 RAF aircrew were killed and 385 wounded. By 1942 the casualty list had been increased to 449 dead, largely owing to an administrative change altering the official date on which the battle commenced from 8 August 1940 to 10 July 1940. It was not until November 1960 that an Air Ministry memorandum officially defined the qualification for having flown in the Battle of Britain. Such a claim could be made by a man who had flown at least one sortie between 10 July and 31 October 1940 while serving in one of the 71 accredited squadrons under the control of Fighter Command. Subsequent examination of these squadrons' records showed that 537 aircrew (mainly pilots) were killed or died from injuries sustained in the battle. Using the total number of Battle of Britain airmen (as prescribed above) as the denominator ($n=2946$), the mortality they experienced was 18%; one in five was killed. Such a denominator, however, masks the true casualty rates for front line squadrons which, in the heaviest fighting, must have exceeded 50%. One estimate put the average life expectancy of a fighter pilot at 87 flying hours. One hundred and seventy five (33%) of the dead have no known grave; many perished in the English Channel. The average age of the airmen killed was 24 years.

Half a century later it would be naive to suggest that running a health service is as straightforward as running an organisation to shoot down enemy aeroplanes. But Fighter Command, in addition to its courageous airmen, was strong on intelligence and organisation, two areas in which the NHS has been criticised.

From 1935 onwards the RAF had been developing its intelligence network. By 1940 the main information source was radar (radio direction finding), supported by the Royal Observer Corps (spotting and plotting aircraft) and the "Y" service which held Luftwaffe squadrons and airfields across the Channel under permanent radio surveillance, using ultracryptanalysis to decode messages in the Enigma codes. The information gathered was disseminated rapidly from Fighter Command headquarters at Bentley Priory, through group operations rooms, to sector operation rooms, and finally to the actual fighter squadrons. The sector controller, usually a pilot with combat experience, controlled the aircraft until they sighted the enemy. "The Fighter Command system was a delicately interlocking net of communications and responsibilities, comprising a carefully tuned instrument of war."

Information systems in the NHS have not been as effective. In 1979 it was reported that information to assist decision makers in the NHS left much to be desired: "relevant information may not be available to all, or in the wrong form. Information that is produced is often too late to assist decision making or may be of dubious accuracy." The Körner reports, and their implementa-

tion, are an attempt to improve the situation but it is too early to judge their success. Whatever their limitations, the Körner recommendations have broken with the pattern of nearly 40 years of apathy about information systems in the NHS. The experience of 1940 showed that investment in a good information service can pay handsome dividends.

In terms of organisation, Fighter Command's structure was in accord with the thinking of the Griffiths report on NHS management which recommended a small strong general management body at the centre to ensure that responsibility was pushed as far down the line as possible—that is, to the point where action can be taken effectively. Interestingly, former senior officers from all three services have been recruited into NHS administration in recent years.

In recounting the events of 1940 we also do well to remember that had RAF Fighter Command been defeated then it is unlikely that this country would have survived to establish a national health service eight years later.—HUGH F THOMAS, registrar in community medicine, Ramsgate, Kent.

100 YEARS AGO

The death of Viscountess Strangford, which occurred on March 24th on board the steamship *Lusitania* in the Mediterranean, when on her way to Port Said for the purpose of organising and opening the new hospital for British seamen, which has been erected there by subscription, will be a source of profound regret to the many persons with whom she has been associated in charitable and philanthropic work. Lady Strangford took a deep interest in hospital nursing, and had gone through a course of training in order to obtain practical knowledge of the subject. The society known as the National Association for providing Trained Nurses for the Sick Poor owes its origin to her exertions, and many other nursing institutions are indebted to her for her assistance and co-operation. Lady Strangford took a large and important part in the raising of the fund for the relief of the Bulgarian peasants at the time of the Bulgarian atrocities in 1876, when nearly £30,000 was collected and applied by her, with the assistance of Sir Vincent Kennett-Barrington and others, to the relief of the sufferers. In 1877 she raised a fund, which amounted to several thousand pounds, for the relief of the Turkish sick and wounded in the war between Turkey and Russia. In order to save the wounded from the delay and suffering of removal, she went with her staff of nurses to the front, and there opened and maintained her hospital. Then it was that Lady Strangford was taken prisoner by the Russians, and underwent hardships from which she never fully recovered. In 1882 Lady Strangford, at the request of the St John Ambulance Association, proceeded to Cairo, where she established the Victoria Hospital for the reception and relief of the sick and wounded during the Egyptian war. For these services Her Majesty the Queen conferred on Lady Strangford the distinction of the Red Cross. (*British Medical Journal* 1887)